UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/271,905	03/18/1999	TSUTOMU TAKAHASHI	1767-43	4929

7590 05/10/2004

NIXON & VANDERHYE
1100 NORTH GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 222014714

EXAMINER	
WONG, ALLEN C	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 05/10/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/271,905	Applicant(s) TAKAHASHI, TSUTOMU	
	Examiner Allen Wong	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5 and 12* is/are allowed.

6)☒ Claim(s) *1-4,6-11 and 13-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/26/04 have been fully read and considered but they are not persuasive.

Regarding lines 9-11 on page 3 of applicant's remarks, applicant asserts that Kim does not disclose generating movement vectors using different search ranges or accuracies or of selecting from among such movement vectors. The examiner respectfully disagrees. As noted in the previous Office Action, Kim (JP 09-074569) teaches in paragraph 0022, fig.2 shows the candidate blocks that contain candidate motion vector information are matched to form candidate motion vectors at output of element 29. Then, when one peruses fig.3, the candidate motion vectors are sent to the motion compensation section 31 and note the candidate motion vector information is then sent to different difference generators 32-1 to 32-M along with a search block data, containing search range and search accuracy information between one frame and another frame, to generate an error signal or a distortion value. Next, the difference generator (32-1 to 32-M) generated values are then sent to the absolute value calculator 36-1 to 36-M for calculation of the of the SAD or sum of absolute differences, and the appropriate, minimum SAD value will be used for comparison with the appropriate candidate motion vectors for determination of the optimum motion vector.

So clearly, a plurality of movement vectors are generated from 32-1 to 32-M and that the search range and search accuracy information is taken into account (fig.3, note "SEARCH BLOCK DATA" contains the search range and search accuracy information).

Also, note that Kim's US Patent No. 5,838,391 has the same disclosure as the Japanese Patent No. 09-074569, published on March 18, 1997.

Regarding lines 18-19 on page 3 of applicant's remarks about dependent claims, particularly claims 2 and 9, applicant contends that Kim does not disclose lower search accuracies and wider ranges. The examiner respectfully disagrees. The dependent claims 2 and 9 are rejected for the same reasons as above. Further, in paragraph 0019, Kim (JP 09-074569) teaches the use of seek-area formation section 22 that can have various seek or search ranges and accuracies since a search block can have arbitrary sizes and shapes, thus different search patterns can lead to various search ranges and accuracies, meaning lower and higher search accuracies and wider search ranges are disclosed in Kim. Also, Kim's paragraph 0029 discloses that it is natural that various changes can be added to Kim's invention. In other words, Kim implies that various search ranges and accuracies can be applied to Kim's invention including lower search accuracies and wider search ranges.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-11 and 13-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (JP 09-074569).

Regarding claim 7, Kim discloses an image encoding apparatus comprising

(a) a movement vector generating apparatus for generating a movement vector for a movement compensation by means of an inter-frame prediction, when encoding a preset image information including an image of a plurality of frames by using the movement compensation (please peruse abstract and also see figures 1-3 where Kim discloses the detection and generation of motion vectors between a present frame and a reference frame, ie. inter-frame prediction), said apparatus comprising:

a plurality of generating devices each for generating the movement vector corresponding to a search range and a search accuracy between one frame and another frame, for each pixel block which is located within said one frame respectively in the image information and includes a plurality of pixels, said generating devices respectively using search ranges different from each other and search accuracies different from each other (see paragraph 0022, 0023; note Kim's fig. 3 is a detailed drawing of the optimum motion vector determinator 30 of fig.1 within the motion estimation unit 15, where plural candidate motion vectors that correspond to a search range and accuracy are dispersed, and motion vectors are generated at elements 32-1 to 32-M, where 32-1 to 32-M); and

a selecting device for selecting one of movement vectors generated by said generating devices, in accordance with characteristics of the image in said each pixel block, and then outputting the selected movement vector corresponding to said each pixel block (see paragraphs 0027 and 0028; Kim discloses figure 3, element 38 is a selecting device that compares the sum of absolute value from each of the generated

motion vector values generated from elements 36-1 to 36-M, via elements 32-1 to 32-M, element 38 chooses or selects the minimum sum of absolute value generated from said generating devices elements 32-1 to 32-M, and element 39 chooses or selects an optimum motion vector, a candidate motion vector of the candidate block, that corresponds to the sum of the minimum absolute value, thereby providing the optimum motion vector as the motion vector of the search block, ie. the selected movement vector corresponding to said each pixel block, and eventually the best motion vector will be coming out at element 27),

(b) a compensating device for performing the movement compensation on the basis of the selected movement vector outputted from the selecting device, to output a compensation signal (fig.1, element 50), and

(c) an encoding device for encoding the image information on the basis of the compensation signal (note figure 1, Kim discloses the image information is encoded after the image information has been motion compensated by element 50 and goes directly to the adder 10 that leads to the DCT transform for encoding in the frequency domain).

Note claims 1, 2, 8, 9, 14, 15, 19, 20, 24, 25, 29, 30 and 34 have similar corresponding elements.

Regarding claims 3, 6, 10, 13, 16, 18, 21, 23, 26, 28, 31 and 33, Kondo discloses the selecting device outputting the selected movement vector (see paragraphs 0027 and 0028; Kim discloses figure 3, element 38 is a selecting device that compares the sum of absolute value from each of the generated motion vector values generated from

elements 36-1 to 36-M, via elements 32-1 to 32-M, element 38 chooses or selects the minimum sum of absolute value generated from said generating devices elements 32-1 to 32-M, and element 39 chooses or selects an optimum motion vector, a candidate motion vector of the candidate block, that corresponds to the sum of the minimum absolute value, thereby providing the optimum motion vector as the motion vector of the search block, ie. the selected movement vector corresponding to said each pixel block, and eventually the best motion vector will be coming out at element 27).

Regarding claims 4 and 11, Kim discloses the first adding device (fig.3, 36-1), the second adding device (fig.3, 36-2), the standardizing device (fig.3, 38) and the selecting device for comparing the standardized first absolute value sum with the standardized second absolute sum and outputting the selected vector (fig.3, 38 and 39).

Regarding claims 17, 22, 27 and 32, Kim discloses a comparator (fig.3, 38).

Allowable Subject Matter

Claims 5 and 12 are allowed over the prior art.

The following is a statement of reasons for the indication of allowable subject matter: dependent claims 5 and 12 were objected to in paper number 4, and all of the limitations of the claims, including the intervening limitations, were rewritten into an independent form. The combination of limitations as disclosed in claims 5 and 12 are not disclosed in the prior art.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen Wong
Examiner
Art Unit 2613

AW
5/4/04

CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600